



# INFLAMMATORY BRAIN DISORDERS CONFERENCE 2025

A live virtual event via webinar hosted by Neuroimmune Institute  
in partnership with Neuroimmune Foundation and accredited  
in collaboration with The Wisconsin Medical Society

## MAY 15–16, 2025

10:00 am – 5:30 pm Central Time

Tentative agenda, as of April 22, 2025.  
Please note the agenda may be revised.



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The Inflammatory Brain Disorders Conference features nationally and internationally renowned experts skilled in diagnostic and therapeutic approaches who will present a diverse range of emerging clinical and research challenges, insights, and advances in the field of inflammatory brain disorders. Presentations have been carefully selected to familiarize attendees with rapidly developing research and to educate clinicians on the latest advances in the field.

Both generalists as well as specialists in pediatric and adult medicine will find the conference valuable to their practices. The intended audience is pediatricians, family physicians, psychiatrists, rheumatologists, immunologists, neurologists, and infectious disease physicians. Though the conference is designed for physicians, all are welcome to attend.



[neuroimmuneinstitute.org](https://neuroimmuneinstitute.org)

Neuroimmune Institute provides high-quality continuing medical education focused on autism, immunopsychiatric, neuroimmune, and inflammatory brain conditions. Neuroimmune Institute was founded with the goal of rapidly advancing clinical medicine and research.

## Thursday, May 15, 2025 – Agenda

All times listed in Central Time

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12:00 pm – 12:45 pm	<b>Diagnosing and Treating Long COVID in Children: Current Insights and Ongoing Challenges</b> <i>Lael Yonker, MD</i>	6
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3:00 pm – 3:45 pm	<b>The Ketogenic Diet: An Anti-Inflammatory and Immune-Modulating Treatment for Neuropsychiatric Disorders</b> <i>Christopher M. Palmer, MD</i>	8
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All times listed in Central Time

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12:45 pm – 1:30 pm	<b>Learning From a Few PANS/PANDAS Cases as a Pediatric Rheumatologist</b> <i>Julia (Yujuan) Zhang, MD</i>	13
1:30 pm – 2:15 pm	Lunch	
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3:00 pm – 4:15 pm	<b>Stanford Immune Behavioral Health Program 2025 Clinical and Research Update – Clinical Pearls: Reflections on a Decade of Treating Rheum-Psych Conditions</b> <i>Jennifer Frankovich, MD, MS, presenting with Melissa Silverman, MD, Meiqian Ma, MD</i>	14
4:15 pm – 4:30 pm	Break	
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5:30 pm	Closing	

## May 15, 2025 – Agenda and Speaker Details

10:00 – 10:45am CT



### Depression and Inflammation: A New Hypothesis for a Classic View

**Carmine Maria Pariante, MD, FRCPsych, PhD**

*Professor of Biological Psychiatry at the Institute of Psychiatry, Psychology and Neuroscience, King's College London; Consultant Perinatal Psychiatrist at the South London and Maudsley NHS Foundation Trust*

#### Presentation Synopsis

Overwhelming evidence is now present that people with major depression have an increased activation of the inflammatory response due in part to lifestyle and in part to intrinsic activation of stress-related biological pathways. The talk will discuss the current unanswered questions on this topic and the potential clinical impact.

#### Speaker Biography

Carmine M. Pariante is Professor of Biological Psychiatry at the Institute of Psychiatry, Psychology and Neuroscience, King's College London, and Consultant Perinatal Psychiatrist at the South London and Maudsley NHS Foundation Trust.

He investigates the role of stress and inflammation in the pathogenesis of mental disorders and in the response to psychotropic drugs, both in clinical samples and experimental settings.

His work focuses on depression and fatigue, with a particular interest in the perinatal period and in subjects with medical disorders. More recently, he has developed an interest in the effects of the arts, social prescribing, and nutritional interventions, on mental health.

Since 2018, Professor Pariante has been a Clarivate Analytics Highly Cited Researcher, and, as of April 2024, he has published >520 publications, with close to 40,000 citations and an H-Index of 103 in Scopus and 137 in Google Scholar.

He has received numerous awards for his research, including the 2015 Anna-Monika Prize for Research on Depression, the 2016 PNIRS Normal Cousins Award for Research in Psychoneuroimmunology, the 2017 Award for Outstanding Contribution to the Field of Infant Mental Health, the 2017 NARSAD Distinguished Investigator Award (one of the most prestigious international research awards in psychiatry), the 2018 Art of Neuroscience Award, Royal Academy of Arts and Sciences (The Netherlands), the 2021 Psychiatric Communicator of the Year by the Royal College of Psychiatrists and the 2022 Media Award from the American College of Neuropsychopharmacology. He is also the appointed Editor in Chief of the journal *Brain Behaviour and Immunity* and the President of the International Society for Psychoneuroendocrinology.

Professor Pariante has extensive experience in reaching out to the press on topics related to mental health, with >70 media appearances in newspapers, magazines, radio and TV. He can be followed on Twitter and Instagram on @Pariantelab and on the digital publication that he edits, [www.inspirethemind.org](http://www.inspirethemind.org).

*Professor Pariante has no relevant financial relationship(s) to disclose with ineligible companies whose primary business is producing, marketing, selling, re-selling, or distributing healthcare products used by or on patients.*

## New Target for rTMS in OCD: Focus on Neuroinflammation



### Stefano Pallanti, MD, PhD

*Professor of Psychiatry, Albert Einstein College of Medicine; Professor of Psychiatry, Imperial College; Professor of Psychiatry, Icahn School of Medicine at Mount Sinai; Medical and Scientific Director of the Institute of Neuroscience, Italy*

#### Presentation Synopsis

Transcranial Magnetic Stimulation (TMS) is a noninvasive technique that may have anti-inflammatory effects beneficial for treating neuropsychiatric disorders, including obsessive-compulsive disorder (OCD). At present, there are three FDA-approved protocols for resistant OCD. There is a growing interest and support for advancing TMS in the treatment algorithm for resistant OCD patients and for TMS application in neurodevelopmental conditions.

Compared to the usual treatment, 1 Hz rTMS over the supplementary motor area (BA 6) appeared to be effective in approximately 2/3 of SSRI-refractory OCD subjects, whereas in the Treated as usual group, only 1/4 of subjects were responders.

TMS modulates the Subthalamic Nucleus and Nucleus Accumbens' functional connectivity, engaging overlapping and distinct regions and unfolding following different temporal dynamics. Given the relevance of the engaged connected regions to OCD pathology, a personalized, connectivity-based procedure is worth investigating as a potential treatment for refractory OCD

Also, another interesting target for rTMS in OCD and PANS is neuroinflammation; in fact, TMS has shown an anti-inflammation effect by decreasing pro-inflammatory cytokines, including IL-1 $\beta$ , IL-6, and TNF- $\alpha$ , and increasing anti-inflammatory cytokines, including IL-10 and BDNF, in cortical and subcortical tissues. In addition, rTMS reduces the expression of glutamate receptors (mGluR5 and NMDAR2B) and microglia and astrocyte markers (Iba1 and GFAP). Furthermore, rTMS decreases nNOS expression in ipsilateral DRGs and peripheral nerve metabolism and regulates neuroinflammation.

The implications of these preliminary findings are now being investigated in OCD patients.

#### Speaker Biography

Dr. Stefano Pallanti is a physician-neuroscientist applying cutting-edge neuroscience discoveries to clinical work covering a broad area of Neuro-Psychiatry and is considered a world expert on transcranial magnetic stimulation (TMS) and neuromodulation treatments. He served as a member of the founders and board of directors of the Clinical TMS Society.

He is a Professor of Psychiatry at Albert Einstein College of Medicine, New York, Imperial College, London, and at the Icahn School of Medicine at Mount Sinai where he covered the role of the Director of the Strategic Center of Excellence in Psychiatry (2007–2008). He is the Medical and Scientific Director of the Institute of Neuroscience (Florence, Italy). Previously, Dr. Pallanti held the position of Professor of Psychiatry and TMS Consultant at Stanford University California.

He is a faculty member of Harvard University and Massachusetts General Hospital Psychiatry Academy, of the Training School at Clare College, Cambridge University, and the University of Pisa.

He is a NIMH grant co-PI in Theta Burst Stimulation of pathological gamblers, PI for Italy of the European Cooperation in Science & Technology (COST) CA16207 funding – European Network for Problematic Usage of the Internet (EU-PUI), and Beneficiary for Italy for the Horizon Grant, European Health and Digital Executive Agency: “Boosting Societal Adaptation and Mental Health in a Rapidly Digitalizing, Post-Pandemic Europe”. (MPI: Naomi Fineberg).

Continued on page 6 →



Dr. Pallanti serves on many distinguished boards and advisory councils, including the European Commission for Depression Treatments, the World Health Organization as an expert on Anxiety, European College of Neuropsychopharmacology, International Center for Autism Research and Education, International College of Obsessive-Compulsive Spectrum Disorders, and American Psychiatric Association for the Diagnostic and Statistical Manual of Mental Disorders for DSM-IV and DSM-5.

He is a member of the World Health Organization-funded COVID-19 Clinical Research Coalition's Ethics Working Group, the Good Clinical Practice Alliance – Europe (GCPA). He is an Editor of the Archive of Behavioral Addiction, Deputy Editor of CNS Spectrums where he is also a columnist. Dr. Pallanti is the author of more than 400 peer-reviewed scientific publications, 14 books, and four psychiatry manuals including a Clinical Manual for Treatment of Schizophrenia published by American Psychiatric Publishing. His H-Index is 69 as of June 2024.

*Dr. Pallanti has no relevant financial relationship(s) to disclose with ineligible companies whose primary business is producing, marketing, selling, re-selling, or distributing healthcare products used by or on patients.*

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Break | 11:30am – 12:00pm CT

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12:00 – 12:45pm CT

## Diagnosing and Treating Long COVID in Children: Current Insights and Ongoing Challenges



### Lael Yonker, MD

*Associate Professor of Pediatrics, Harvard Medical School; Director of the Massachusetts General Hospital (MGH) Cystic Fibrosis Center; Principal Investigator, Pediatric COVID-19 Biorepository and Mucosal Immunology and Biology Research Center at MGH*

#### Presentation Synopsis

Identifying long COVID in children is challenging but the impact of COVID on children cannot be minimized. This talk will highlight the challenges in identifying children with long COVID and show how understanding the pathology driving pediatric PASC can inform adult disease as well. Learning from children with a severe form of PASC, this talk will highlight pathology driving long COVID and discuss novel treatment strategies currently under development.

#### Speaker Biography

Lael Yonker, MD, is an Associate Professor of Pediatrics at Harvard Medical School, Director of the Massachusetts General Hospital (MGH) Cystic Fibrosis Center, Principal Investigator in the Mucosal Immunology and Biology Research Center at MGH, and a pediatric pulmonologist. Since the outset of the COVID-19 pandemic, she has led the MGH Pediatric-COVID-19 Biorepository to collect and analyze biospecimens in order to shape our understanding of how SARS-CoV-2 affects newborns, infants, children, and young adults. Dr. Yonker is currently investigating immune responses and biomarkers for post-acute sequelae of COVID, including long COVID. She runs two investigator-led clinical trials studying the treatment of larazotide, a zonulin antagonist, on post-acute sequelae of COVID-19, Multisystem Inflammatory Syndrome in Children (MIS-C), and long COVID.

*Dr. Yonker has no relevant financial relationship(s) to disclose with ineligible companies whose primary business is producing, marketing, selling, re-selling, or distributing healthcare products used by or on patients.*

12:45 – 1:30 pm CT

## CoRE Insights: Clinical And Research Goals from a Center for Complex Chronic Illness



### David Putrino, PhD

*Professor of Rehabilitation and Human Performance, Icahn School of Medicine at Mount Sinai; Director of Rehabilitation Innovation, Mount Sinai Health System*

#### Presentation Synopsis

The Cohen Center for Recovery from Complex Chronic Illness (CoRE) is a national center of excellence dedicated to providing better research and treatments for people living with Long COVID, Myalgic Encephalomyelitis/Chronic Fatigue Syndrome (ME/CFS), chronic tick- and vector-borne illness and joint hypermobility spectrum disorders. In this talk, we will discuss the latest research insights that are coming out of the center, as well as some of the most up-to-date recommendations for the evidence-based clinical management of people with Infection Associated Chronic Illness.

#### Speaker Biography

Dr. David Putrino trained as a physiotherapist before completing a PhD in Neuroscience. He is currently a Professor in the Department of Rehabilitation and Human Performance at the Icahn School of Medicine at Mount Sinai in New York City, and he is the Nash Family Director of the Cohen Center for Recovery from Complex Chronic Illness. Since the beginning of the COVID-19 pandemic in 2020, Dr. Putrino has been recognized globally as a leading expert in the assessment, treatment, and underlying pathophysiology of Long COVID. His team has managed the care of over 3000 people with Long COVID and published multiple peer-reviewed scientific papers on the topic. In 2019, he was named “Global Australian of the Year” for his contributions to healthcare.

*Dr. Putrino is a Scientific Advisory Board Member for BeCare Link and Chief Strategy Officer for Precision Recovery, Inc. All the relevant financial relationships for this individual have been mitigated.*

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Lunch Break | 1:30 – 2:15 pm CT

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2:15 – 3:00 pm CT

## Down Syndrome Regression Disorder: Mechanisms of Genetic Neuroinflammation



### Jonathan D. Santoro, MD

*Associate Professor of Neurology and Pediatrics, Keck School of Medicine of USC; Director, Neuro-immunology and Demyelinating Disorders Program, Director of Research, Neurologic Institute at Children’s Hospital Los Angeles*

#### Presentation Synopsis

Down Syndrome Regression Disorder (DSRD) is a rare neuropsychiatric disorder affecting otherwise healthy individuals with Down syndrome in the 2nd and 3rd decade of life. Individuals with DSRD have sudden onset of neurocognitive regression, catatonia, hallucinations, and encephalopathy, often with no precipitating factor. Although presumed to be psychiatric in nature since its first report in 1946, recent studies have identified immune mechanisms and reversibility with immunotherapy.

### Speaker Biography

Dr. Santoro serves as the Director of the Neuroimmunology and Demyelinating Disorders Program and Director of Research for the Neurologic Institute at Children's Hospital Los Angeles. He is also an Associate Professor of Neurology and Pediatrics at the Keck School of Medicine at USC. Dr. Santoro completed his undergraduate, masters, and medical degrees at Tulane University. He completed residencies in pediatrics and child neurology at Stanford University which was followed by sub-specialty training in neuroimmunology at Harvard Medical School. Dr. Santoro is one of only a handful of national physician-scientists who treat neurologic disorders associated with Down syndrome. He has been instrumental in identifying systemic vascular abnormalities in persons with Down syndrome and Moyamoya disease, a rare stroke disorder that affects persons with Down syndrome 26 times more frequently than the general population. Dr. Santoro also has clinical research expertise in neuroinflammation as it is related to cerebrovascular disease and neurocognitive disorders such as Down Syndrome Regression Disorder (DSRD), of which he has spoken internationally. In addition to his clinical and research activities, Dr. Santoro advocates for persons with disabilities at both the state and federal levels through the American Medical Association and the American Academy of Neurology.

*Dr. Santoro is a consultant for TG Therapeutics, UCB, and Cycle Pharmaceutical. All the relevant financial relationships for this individual have been mitigated.*

3:00 – 3:45pm CT

## The Ketogenic Diet: An Anti-Inflammatory and Immune-Modulating Treatment for Neuropsychiatric Disorders



### Christopher M. Palmer, MD

*Assistant Professor of Psychiatry, Harvard Medical School; Founder and Director, Metabolic and Mental Health Program, Director, Department of Postgraduate and Continuing Education, McLean Hospital*

### Presentation Synopsis

This presentation explores the ketogenic diet (KD) as a therapeutic intervention for neuropsychiatric disorders, highlighting its historical use in brain conditions, its diverse mechanisms of action, and emerging clinical research supporting its efficacy. The ketogenic diet is a 100-year-old evidence-based treatment for epilepsy and has many known mechanisms of action, including effects on inflammation, immune modulation, brain metabolism, mitochondrial function, and neurotransmitter balance. Cutting-edge research suggests that the KD may provide therapeutic benefits for conditions such as depression, bipolar disorder, schizophrenia, and other neuropsychiatric disorders.

### Speaker Biography

Dr. Christopher M. Palmer is a Harvard psychiatrist and researcher working at the interface of metabolism and mental health. He is the Founder and Director of the Metabolic and Mental Health Program and the Director of the Department of Postgraduate and Continuing Education at McLean Hospital and an Assistant Professor of Psychiatry at Harvard Medical School. For almost 30 years, he has held administrative, educational, research, and clinical roles in psychiatry at McLean and Harvard. He has been pioneering the use of the medical ketogenic diet in the treatment of psychiatric disorders—conducting research in this area, treating patients, writing, and speaking around the world on this topic. Most recently, he has proposed that mental disorders can be understood as metabolic disorders affecting the brain, which has received widespread recognition in both national and international media outlets.

*Dr. Palmer has no relevant financial relationship(s) to disclose with ineligible companies whose primary business is producing, marketing, selling, re-selling, or distributing healthcare products used by or on patients.*

Break | 3:45–4:00pm CT



## In Vitro and Ex Vivo Therapeutics to Explore Epigenetic and Immune Therapies for Pediatric Acute Neuropsychiatric Syndrome



### Russell Dale, MBChB, MRCPCH, MSc, PhD

*Professor of Paediatric Neurology and Paediatric Neurology Research; Head, Kids Neuroscience Centre, Children's Hospital at Westmead, Academic Leader (Research), Specialty of Child and Adolescent Health; Faculty of Medicine and Health, University of Sydney*

#### Presentation Synopsis

Acute-onset neuropsychiatric disorders or neuro-regression can be triggered by infection or other environmental stressors. Pediatric acute neuropsychiatric disorder (PANS) is characterized by abrupt-onset obsessive-compulsive disorder or eating restriction, typically with loss of developmental skills and neurobehavioral symptoms. Autistic regression describes the loss of developmental skills, particularly social and language skills, in association with neurobehavioral symptoms. Both entities are commonly triggered by infection. We hypothesize that both clinical entities represent a gene-environment interaction associated with epigenetic, immune, and brain dysregulation.

We present data in 56 children with PANS and describe the observations that the clinical phenotype is associated with the neurodevelopmental age at onset. Younger children are more likely to have autistic and language features, whereas psychosis is more common in adolescents. We present parental and clinician-reported therapeutic observations in PANS and rank the drugs according to apparent benefits and side effects.

Single cell RNA sequencing can measure gene regulation at an individual cell level, and the statistical power of this approach allows analysis of an individual patient gene regulation compared to controls at an n=1 or small cohort level. We show the power of this approach in defining mechanisms of action of therapeutics.

Using ex vivo approach, we used scRNA seq at baseline in 4 children with PANS who were treated with intravenous immunoglobulin- we compare pre-IVIG findings with post-IVIG findings, and healthy control findings. We show that there is immune dysregulation at baseline associated with epigenetic and ribosomal dysregulation. IVIG reverses the immune dysregulation and also results in downregulation of histone methyltransferase pathways. Therefore, we show that IVIG has epigenetic effects on immune cell function, in addition to immune and ribosomal effects.

Using an in vitro approach, we used scRNA seq to treat patient cells with drugs in a test tube. This allows us to explore mechanisms of disease and generate drug candidates biologically by treating the patient cells. We show that butyrate, a known epigenetic metabolite (HDAC inhibitor), reverses the cellular immune and epigenetic abnormalities.

These approaches help understand immunological dysfunction in PANS and provide some scientific rationale to therapeutic mechanisms of action. Similar approaches can be used for other drugs that can help PANS, such as ibuprofen and azithromycin- these approaches can provide rationale for future randomised clinical trials.

#### Speaker Biography

Professor Russell Dale is a Professor of Paediatric Neurology at the University of Sydney, Australia. He does clinical work at the Children's Hospital at Westmead and runs a research program on neuro-immunology at the University. His main interests are understanding disease mechanisms in rare and common neurological disorders of children, biomarkers such as autoantibodies and cellular markers, and neurotherapeutics. His main priority is to understand how environmental factors in early life interact with genetic vulnerability to create epigenetic dysfunction of the immune system and brain, and how this renders children vulnerable to neurodevelopmental disorders and neuroregression in childhood. He strongly believes that only understanding disease mechanisms will allow novel therapeutics in the future. He is the Head of the Children's Hospital at Westmead Clinical School, clinical director of the Kids Neuroscience Centre, and NHMRC Investigator fellow. He has been the chief investigator in grants totaling over AUD25M, has published 365 peer-reviewed publications, and his Google Scholar H factor is 87 with 29,380 citations.

*Professor Dale has no relevant financial relationship(s) to disclose with ineligible companies whose primary business is producing, marketing, selling, re-selling, or distributing healthcare products used by or on patients.*

## Genetics of PANS and Regression in ASD and other Neurodevelopmental Disorders



### Herbert M. Lachman, MD

*Professor, Department of Psychiatry and Behavioral Sciences, Medicine, Genetics, and Neuroscience, Albert Einstein College of Medicine*

#### Presentation Synopsis

We have identified pathogenic variants in genes that code for DNA repair enzymes in patients with pediatric acute-onset neuropsychiatric syndrome (PANS) and regression in autism and other neurodevelopmental disorders. These include members of the p53 DNA damage response (DDR) pathway (for example, PPM1D and ATM) and the Fanconi Anemia Complex (FANCI and FANCC). We hypothesize that abnormal DNA repair leads to the activation of innate immune pathways linked to type I interferons and other cytokines, leading to neuroinflammation. In addition, pathogenic variants in nuclear genes affecting mitochondrial trafficking and function, innate immune regulators, and glutamatergic synapses have been identified. Although the small sample size analyzed so far precludes a definitive statistical association for most of the genes, except for ATM, genetic findings in acute and subacute neuropsychiatric decompensation carried out by other researchers support the DNA repair hypothesis.

#### Speaker Biography

Dr. Lachman is a physician-scientist who is clinically trained in internal medicine and hematology but does basic research on the molecular and genetic basis of neuropsychiatric and neurodevelopmental disorders. He is the director of the Program of Behavioral Genetics at the Albert Einstein College of Medicine in New York. Dr. Lachman was one of the first investigators to use induced pluripotent stem cells (iPSCs) to study neuropsychiatric and neurodevelopmental disorders. Dr. Lachman has written more than one hundred papers and book chapters and is the author of a book called “Battle of the Genomes: The Struggle for Survival in a Microbial World.” He is actively involved in teaching medical students, graduate students, and physicians in the Clinical Research Training Program and has won several teaching awards.

*Dr. Lachman has no relevant financial relationship(s) to disclose with ineligible companies whose primary business is producing, marketing, selling, re-selling, or distributing healthcare products used by or on patients.*

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Closing | 5:30 pm CT

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## May 16, 2025 – Agenda and Speaker Details

10:00 – 10:45am CT

### CSF and Blood Markers for Underlying Immunological Conditions in Psychiatric Populations



#### Janet Cunningham, MD, PhD

Professor at Department of Medical Sciences, Clinical Psychiatry, Uppsala University, Sweden; Consultant Psychiatrist, Uppsala University Hospital

#### Presentation Synopsis

Immunotherapies, including B-cell depletion with rituximab, may benefit severe psychiatric conditions, but inconsistent results arise from inadequate patient stratification relying solely on psychiatric diagnoses. Our preliminary findings identify candidate biomarkers for specific T/B cell activation in complex psychiatric cases. These immunophenotypes may provide tools to guide targeted treatment approaches but require rigorous validation.

#### Speaker Biography

Dr. Janet Cunningham is a Professor in Experimental Psychiatry at Uppsala University, is also affiliated with the Department of Neurosciences at Karolinska Institute, and a board-certified specialist in Clinical Psychiatry at Uppsala University Hospital. She has an unusual background for a psychiatrist. She completed a BSc in Immunology and Microbiology with Honors at McGill University, Canada, and thereafter a preclinical PhD and postdoc in Uppsala, Sweden, where she applied molecular techniques to further characterize and subgroup rare serotonin-producing endocrine tumors. Dr. Cunningham shifted her focus to Psychiatry after several coinciding experiences profoundly shifted her perception of psychiatric disease and awoke her curiosity for the biological mechanisms. Dr. Cunningham leads the Immunopsychiatry team in Uppsala, which aims to develop tools to differentiate adaptive from maladaptive immunological responses in treatment-resistant patients with severe psychiatric symptoms in order to identify patients for whom immunomodulation therapy will be beneficial. The hypothesis is that different types of maladaptive immunological responses include immunodeficiencies, vulnerability such as difficulty in mobilizing anti-inflammatory processes needed for inflammation resolution, and autoimmunity. To ensure relevance for clinical psychiatry, research is tightly integrated with patient care at Uppsala University Hospital. Cross-sectional and longitudinal data and samples are continuously collected from daily practice and clinical trials. The strategy is to use and compare knowledge gained by in-depth analysis of individual cases and large-scale analysis of markers related to the immune system in broad patient cohorts to identify markers with variation within the patient group with potential relevance for diagnosis and clinical prognosis. The research questions have the potential to directly impact clinical practice in psychiatry. Dr. Cunningham is the coordinator for a professional network, The Swedish Immunopsychiatry Alliance. She is a member of the Research Network, European College of Neuropsychopharmacology (ECNP) ImmunoNeuroPsychiatry workgroup, and is a member of the Scientific and Medical Advisory Board for The European Immunopsychiatric Association (EXPAND).

*Dr. Cunningham has no relevant financial relationship(s) to disclose with ineligible companies whose primary business is producing, marketing, selling, re-selling, or distributing healthcare products used by or on patients.*

10:45 – 11:30 am CT

## PANS and Neurodevelopmental Disorders: Neuroinflammation as a Common Denominator



### Antonella Gagliano, MD, PhD

Full Professor of Child & Adolescent Neuropsychiatry, Department of Medicine and Surgery, Kore University of Enna (Italy)

#### Presentation Synopsis

The etiopathogenesis of neurodevelopmental disorders is multifactorial, though some common pathogenetic pathways underlying different conditions have been identified. Among them, the interplay between epigenetic and neuroinflammatory factors in regulating microglia activity is now recognized as a key mechanism in neurodevelopmental disorders. Significant scientific advances have highlighted the importance of the first 1000 days (from conception to age 2), showing how this sensitive period is crucial for physical, neural, cognitive, and social-emotional development. Growing evidence indicates that proper cognitive and neurological functioning relies on a delicate balance involving both innate and adaptive immunity from the earliest stages of central nervous system development. The immune response not only protects against infections and pathogens but also influences brain development and function over time. This speech aims to offer a comprehensive overview of neuroinflammatory mechanisms in the etiopathogenesis and pathophysiology of NDDs. By synthesizing key literature, it will clarify how neuroinflammation contributes to NDD onset and progression and which therapeutic strategies targeting these pathways may be implemented.

#### Speaker Biography

Antonella Gagliano completed her medical degree at the University of Messina in 1995 and her PhD at the University of Naples Federico II in 1999. She was an Assistant Professor of Research in the Child and Adolescent Neuropsychiatry Unit, Department of Human Pathology “Gaetano Barresi”, University of Messina, from January 1999 to October 2018. In November 2018, she became Associate Professor of Child Neuropsychiatry at the Department of Biomedical Science, University of Cagliari. She is Full Professor of Child & Adolescent Neuropsychiatry at the Department of Medicine and Surgery of “Kore” University of Enna. She works as a child and adolescent psychiatrist in IRCCS - OC Associazione Oasi Maria SS. Troina (Enna). Her main research interests are Neurodevelopmental Disorders, neuroinflammation in psychiatric disorders, psychopharmacologic treatment of children and adolescents with psychiatric disorders. She is a member of the Italian Society of Child and Adolescent Neuropsychiatry (SINPIA) and an expert fellow of the Collaborative Network for European Clinical Trials for Children(c4c).

*Dr. Gagliano has no relevant financial relationship(s) to disclose with ineligible companies whose primary business is producing, marketing, selling, re-selling, or distributing healthcare products used by or on patients.*

Break | 11:30 am – 12:00 pm CT

12:00 – 12:45 pm CT

## Advancing an Inflammatory Subtype of Major Depression



### Andrew H. Miller, MD

William P. Timmie Professor of Psychiatry and Behavioral Sciences, Vice Chair of Research, Department of Psychiatry and Behavioral Sciences, Director, Behavioral Immunology Program, Emory University School of Medicine

#### Presentation Synopsis

Chronic inflammation plays a prominent role in multiple medical disorders, including psychiatric diseases such as major depression. Exposure to inflammatory stimuli leads to changes in neurotransmitter systems and neurocircuits in the brain that are associated with depressive symptoms. Blockade of inflammatory cytokines can reduce depressive symptoms in medically ill and medically healthy

depressed individuals. Increased biomarkers of inflammation are associated with an overrepresentation of neurovegetative symptoms, including anhedonia, fatigue, and psychomotor slowing, and can predict response to antidepressant treatments. Importantly, however, increased inflammatory biomarkers only occur in a subgroup of depressed individuals. Thus, there appears to be a subset of depressed patients with a unique symptom presentation and treatment response whose disease is primarily driven by inflammation. Further identifying and characterizing this inflammatory subtype of depression can foster the development of treatments targeting the immune system and its effects on the brain. Moreover, by using this mechanism-based approach to parsing the heterogeneity of depression, we can refine our diagnostic nosology and model a strategy for precision medicine and targeted therapeutics in psychiatry.

#### Speaker Biography

Dr. Andrew H. Miller is William P. Timmie Professor and Vice Chair for Research in the Department of Psychiatry and Behavioral Sciences at the Emory University School of Medicine in Atlanta, Georgia. He is an internationally recognized expert in interactions between the brain and immune system as they relate to depression. His work has demonstrated that during immune activation, inflammatory cytokines can access the brain and interact with the metabolism of dopamine and glutamate, while altering neurocircuits relevant to motivation and reward as well as anxiety and alarm. Additionally, Dr. Miller and his group conducted the first clinical trial examining the efficacy of an immunotherapy (cytokine antagonist) for the treatment of depression. He has produced over 300 scholarly publications and won numerous research, teaching, and mentoring awards, including the Anna Monika Award for research in mood disorders. He is also an ISI highly cited researcher and is a Board-Certified Psychiatrist voted as a Top Doctor in Psychiatry.

*Dr. Miller is a consultant for Sirtsei Pharmaceuticals Inc., Cerevel Therapeutics and Freedom Biosciences. All the relevant financial relationships for this individual have been mitigated.*

12:45 – 1:30 pm CT

## Learning From a Few PANS/PANDAS Cases as a Pediatric Rheumatologist



### Julia (Yujuan) Zhang, MD

*Assistant Professor of Pediatric Rheumatology, Division of General Pediatrics, Tufts University School of Medicine*

#### Presentation Synopsis

We have learned PANS/PANDAS can coexist with other rheumatologic diseases, either preceding, concurrently, or following the other diagnoses, further complicating the diagnosis and management of PANS/PANDAS. Dr. Zhang will review several PANS/PANDAS cases from her perspective as a rheumatologist.

#### Speaker Biography

Yujuan Zhang is a pediatric rheumatologist at Tufts Medical Center in Boston. She finished training in pediatric rheumatology at Stanford University in June 2014 and joined the Tufts Medical Center in September 2014. She is a full-time clinician and has been seeing children and young adults with PANS/PANDAS since 2016, with the strong belief that patients with PANS/PANDAS benefit from anti-inflammatory therapies. This has been further supported since she has witnessed many cases with overlapping features for PANS/PANDAS and other autoimmune/inflammatory conditions.

*Dr. Zhang has no relevant financial relationship(s) to disclose with ineligible companies whose primary business is producing, marketing, selling, re-selling, or distributing healthcare products used by or on patients.*

Lunch Break | 1:30 – 2:15 pm CT



2:15 – 3:00 pm CT



## **Sturm und Drang: Stories and Strategies from a Front-Line Field Hospital for PANDAS**

**John P. Whelan, MD, PhD**

*Associate Clinical Professor of Pediatrics, Division of Rheumatology, UCLA*

### **Presentation Synopsis**

As a center for PANS/PANDAS care in Southern California, we have now passed 700 families who were referred for diagnosis and management. These include large numbers of children with autism and some adults who were not able to access care elsewhere. The two surprises in our data include many new diagnoses of primary immunodeficiency and different spondyloarthritis forms (mostly associated with psoriasis, ankylosing spondylitis, and inflammatory bowel disease). Focusing on improving sleep quality has led to considerable improvement in quality of life. Among our newer areas of inquiry is the role that COVID has played as a causative factor for PANS, and seeking a better understanding of the bowel-brain connection.

### **Speaker Biography**

Patrick Whelan, MD, PhD, is an associate professor of Pediatrics at UCLA, adjunct faculty in Molecular Microbiology & Immunology at USC, and Lecturer in Pediatrics at Harvard Medical School. He is a past president of the Los Angeles Pediatric Society and helps organize the society's summer program for high school students interested in careers in pediatrics. He is a pediatric rheumatologist and directs care at UCLA for children with autoimmune encephalopathy and other neuroimmune disorders. He lectures in virology at USC and in a UCLA course entitled "The Science of Music." He also teaches a Harvard Psychology Department course, "Music and the Mind," on the evolutionary origins of musicality and the role of auditory processing in health and disease.

*Dr. Whelan has no relevant financial relationship(s) to disclose with ineligible companies whose primary business is producing, marketing, selling, re-selling, or distributing healthcare products used by or on patients.*

3:00 – 4:15 pm CT

## **Stanford Immune Behavioral Health Program – 2025 Clinical and Research Update**

### **Clinical Pearls: Reflections on a Decade of Treating Rheum-Psych Conditions – Where We Failed (and Almost Failed) & How We Improved**

Jennifer Frankovich, MD, MS, presenting with Meiqian Ma, MD, and Melissa Silverman, MD

### **Presentation Synopsis**

The clinicians from the Stanford Immune Behavioral Health Program will join to share their valuable clinical insights and recent research advancements. This session will provide an in-depth look at the challenges and breakthroughs over the past decade in treating patients with complex rheumatological and psychiatric conditions.

Rheumatologist and IBH Clinical and Research Program Director Dr. Jennifer Frankovich will open the session with a brief update on PANS (Pediatric Acute-onset Neuropsychiatric Syndrome) research, shedding light on the condition based on the latest data and discoveries.

Psychiatrist Dr. Melissa Silverman will address the critical issue of managing psychiatric symptoms (OCD, anxiety, aggression, psychotic symptoms, catatonia) while treating inflammatory conditions. Exploring the balance between psychiatric care and immunological treatment.

Rheumatologist Dr. Meiqian Ma will share her experiences in treating psychiatric conditions co-presenting with conditions like enthesitis, arthritis, and inflammatory back pain, offering lessons learned and concrete approaches to managing these challenging cases.

Last, Dr. Frankovich will provide an insightful update on the use of Rituximab in treating autoimmune OCD, focusing on both acute and subacute presentations and how this novel treatment strategy has evolved. The presentation will include recently published data from the program about patients' clinical courses before and after Rituximab use.

The presenters will offer actionable insights based on their own experiences for clinicians who are navigating caring for complex patients at the intersection of rheumatology and psychiatry.



## **PANS Research Update**

### **Jennifer Frankovich, MD, MS**

*Clinical Professor, Pediatrics – Allergy, Immunology, Rheumatology; Co-Director, Stanford Children's Immune Behavioral Health Clinic; Director, Stanford Immune Behavioral Health Research Program, Stanford University School of Medicine*

Dr. Jennifer Frankovich's primary research and clinical interest is the intersection of mental health and systemic inflammation. She co-founded the Stanford PANS/Immune Behavioral Health multi-disciplinary clinic and research program. Alongside other collaborators, she is building a large biorepository of patient blood samples and clinical data to share with basic scientists worldwide. She collaborates with 10 basic science labs at Stanford to characterize the immunophenotypes of active PANS compared to remission samples and age-matched controls. Her ultimate goal is to understand the immunological factors contributing to mental health disturbances and to innovate effective multidisciplinary treatment regimens.

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## **Learning Lessons in Treating Psychiatric Conditions Co-presenting with Enthesitis, Arthritis, & Inflammatory Back Pain**

### **Meiqian Ma, MD**

*Clinical Assistant Professor, Pediatrics, Rheumatology, Stanford University School of Medicine*

Dr. Ma is an Assistant Clinical Professor in the Department of Pediatrics, Division of Allergy, Immunology, and Rheumatology (AIR) at Stanford University/Lucile Packard Children's Hospital (LPCH). She completed her medical training at the Medical College of Wisconsin. She then went to Cohen Children's Medical Center/Northwell Health to complete her training in pediatrics and pediatric rheumatology. She joined the Stanford Immune Behavioral Health clinic in July 2020, and her main research focuses on arthritis, enthesitis, and inflammatory back conditions in patients with PANS.

*Dr. Ma has no relevant financial relationship(s) to disclose with ineligible companies whose primary business is producing, marketing, selling, re-selling, or distributing healthcare products used by or on patients.*



## **Managing Psychiatric Symptoms while Treating Inflammatory Conditions**

### **Melissa Silverman, MD**

*Clinical Assistant Professor, Psychiatry and Behavioral Sciences, Child and Adolescent Psychiatry and Child Development, Stanford University School of Medicine*

Dr. Melissa Silverman is a Child & Adolescent Psychiatrist in Palo Alto, CA, and Menlo Park, CA, with 12 years of experience in the field of Psychiatry. Dr. Silverman's clinical focus is on children with Pediatric Acute-onset Neuropsychiatric Syndrome (PANS) and adolescent youth with suicidal ideation. She graduated from Michigan State University College of Human Medicine and completed four years of general psychiatry training at Mayo Clinic Rochester. She completed her child and

adolescent psychiatry fellowship at Stanford University School of Medicine. She is currently a Clinic Assistant Professor at Stanford School of Medicine.

*Dr. Ma has no relevant financial relationship(s) to disclose with ineligible companies whose primary business is producing, marketing, selling, re-selling, or distributing healthcare products used by or on patients.*



## **Learning Lessons in using Rituximab in Autoimmune OCD (Acute and Subacute Presentations)**

**Jennifer Frankovich, MD, MS**

*Clinical Professor, Pediatrics – Allergy, Immunology, Rheumatology; Co-Director, Stanford Children's Immune Behavioral Health Clinic; Director, Stanford Immune Behavioral Health Research Program, Stanford University School of Medicine*

*Dr. Frankovich has no relevant financial relationship(s) to disclose with ineligible companies whose primary business is producing, marketing, selling, re-selling, or distributing healthcare products used by or on patients.*

Break | 4:15 – 4:30 pm CT

4:30 – 5:30 pm CT

## **Use of Immunomodulation in PANS and Related Inflammatory Brain Disorders**

Jennifer Frankovich, MD, MS, presenting with Meiqian Ma, MD, and Cynthia Wang, MD

### **Presentation Synopsis**

Dr. Wang's talk explores the role of immunotherapy induction treatments in the management of suspected neuroimmunological disorders, focusing on the rationale, mechanisms, and clinical considerations for early intervention. Timely and appropriate immunotherapy can significantly impact patient outcomes, but given the complexity and heterogeneity of neuroimmune conditions, utilization of immunotherapies must also be tempered by lack of certainty about the disease process and the possibility of unnecessary or risky treatments.

Dr. Ma will discuss maintenance therapies and strategies to use maintenance therapies in AE, PANS, and other immune-mediated neuropsychiatric conditions (neuropsychiatric lupus, CNS vasculitis, etc.).

Dr. Frankovich will discuss combination therapy strategies. For example, anti-proliferative drugs with biologics can be used to prevent anti-drug antibodies. Also, use of adjunctive therapies if the clinician suspects failure with a single agent or the patient has clear indicators (based on the personal history of first-degree family member) that additional agents may be helpful: adjunctive hydroxychloroquine when a patient has features of lupus, using IVIG as an adjunct when patient has signs of immunodeficiency or frequent infections, use of NSAID if enthesitis or inflammatory back pain, use of drugs used in psoriasis when patient of first degree family member has psoriasis. The goal is not to abandon the first-line agent if it is working, but rather to add to it to optimize treatment.



### **Induction Immunomodulation**

**Cynthia Wang, MD**

*Pediatric Neurologist, Assistant Professor, University of Texas, Southwestern Medical Center*

Dr. Cynthia Wang, a Child Neurologist in the departments of Pediatrics and Neurology at UT Southwestern, focuses on the diagnosis and treatment of children with neuroimmunological disorders of the central nervous system. She is experienced in caring for patients with Acute Disseminated Encephalomyelitis (ADEM), Multiple Sclerosis, Neuromyelitis Optica Spectrum Disorder, and anti-NMDAR Encephalitis. Her clinical research interests include improving the diagnosis and treatment of antibody-negative autoimmune encephalitis and studying the long-term neuropsychological outcomes in children with autoimmune brain disorders.

*Dr. Wang has no relevant financial relationship(s) to disclose with ineligible companies whose primary business is producing, marketing, selling, re-selling, or distributing healthcare products used by or on patients.*



## **Traditional and Biological DMARDS**

### **Meiqian Ma, MD**

*Clinical Assistant Professor, Pediatrics, Rheumatology, Stanford University School of Medicine*

Dr. Ma is an Assistant Clinical Professor in the Department of Pediatrics, Division of Allergy, Immunology, and Rheumatology (AIR) at Stanford University/Lucile Packard Children's Hospital (LPCH). She completed her medical training at the Medical College of Wisconsin. She then went to Cohen Children's Medical Center/Northwell Health to complete her training in pediatrics and pediatric rheumatology. She joined the Stanford Immune Behavioral Health clinic in July 2020, and her main research focuses on arthritis, enthesitis, and inflammatory back conditions in patients with PANS.

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## **Combination Therapies**

### **Jennifer Frankovich, MD, MS**

*Clinical Professor, Pediatrics – Allergy, Immunology, Rheumatology; Co-Director, Stanford Children's Immune Behavioral Health Clinic; Director, Stanford Immune Behavioral Health Research Program, Stanford University School of Medicine*

Dr. Jennifer Frankovich's primary research and clinical interest is the intersection of mental health and systemic inflammation. She co-founded the Stanford PANS/Immune Behavioral Health multidisciplinary clinic and research program. Alongside other collaborators, she is building a large biorepository of patient blood samples and clinical data to share with basic scientists worldwide. She collaborates with 10 basic science labs at Stanford to characterize the immunophenotypes of active PANS compared to remission samples and age-matched controls. Her ultimate goal is to understand the immunological factors contributing to mental health disturbances and to innovate effective multidisciplinary treatment regimens.

*Dr. Frankovich has no relevant financial relationship(s) to disclose with ineligible companies whose primary business is producing, marketing, selling, re-selling, or distributing healthcare products used by or on patients.*

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**Closing | 5:30pm CT**

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## **Hosts/Moderators**



### **Anna Conkey**

*Executive Director and Founder, Neuroimmune Institute and Neuroimmune Foundation*

*Ms. Conkey has no relevant financial relationship(s) to disclose with ineligible companies whose primary business is producing, marketing, selling, re-selling, or distributing healthcare products used by or on patients.*



### **Samuel Pleasure, MD, PhD**

*Glenn W. Johnson, Jr. Memorial Endowed Chair; Professor, Department of Neurology, UCSF; Director Neuroscience Graduate Program, UCSF; Co-Director Center for Encephalitis and Meningitis, UCSF*

Sam Pleasure, MD, PhD is the Glenn W. Johnson, Jr. Memorial Endowed Chair in Neurology at UCSF. Dr. Pleasure is a neurologist who specializes in caring for patients with multiple sclerosis. He also has expertise in caring



for patients with epilepsy as well as years of experience in managing a variety of neurological conditions in both clinic and hospital settings. Dr. Pleasure has two main areas of inquiry for his research. He studies processes that regulate early brain development in both normal and diseased situations. He also studies autoimmune forms of meningoencephalitis, where inflammation in specific brain areas causes severe neurologic dysfunction. Pleasure received his medical degree and a doctorate in neuroscience from the University of Pennsylvania. He was chief resident during his neurology residency at UCSF, where he then completed a research fellowship in neuroscience. Pleasure is a fellow of the American Neurological Association and a member of the American Academy of Neurology, American Epilepsy Society, Society for Neuroscience, Society for Developmental Biology and Cajal Club. He has won numerous awards for his research and has received research funding from a wide variety of private, state and federal sources. He has served in leadership roles in national organizations and in the UCSF Department of Neurology.

*Dr. Pleasure has no relevant financial relationship(s) to disclose with ineligible companies whose primary business is producing, marketing, selling, re-selling, or distributing healthcare products used by or on patients.*



### **Lawrence Steinman, MD**

*Professor of Neurology and Pediatrics, Stanford University School of Medicine*

Dr. Lawrence Steinman is a Professor of Neurology, Neurological Sciences, and Pediatrics at Stanford University. He was Chair of the Stanford Program in Immunology from 2001 to 2011. His research focuses on what provokes relapses and remissions in multiple sclerosis (MS), and on the quest for antigen-specific therapy in autoimmune disease. Steinman was the senior author of the 1992 Nature article that led to the drug Tysabri, approved for MS and Crohn's disease. He is currently applying insights from Tysabri to develop new therapies for neurodegenerative diseases, aimed at blocking macrophages and microglia from eating neurons and axons "in danger." Dr. Steinman graduated from Dartmouth College, Magna Cum Laude in Physics. His MD is from Harvard Medical School. He was a post-doctoral fellow in chemical immunology fellow at the Weizmann Institute of Science. After neurology residency, he remained on the faculty in 1980. He has received numerous honors, including the John M. Dystel Prize in 2004, the Javits Neuroscience Investigator Award from the NINDS twice, the Charcot Prize in MS research, and the Cerami Prize in Translational Medicine. Steinman is a member of the National Academy of Sciences and the National Academy of Medicine. Dr. Steinman co-founded several biotech companies, including Neurocrine, Atreca, 180 Life Sciences, 5 Integrin LLC, and Pasithea. He was a Director of Centocor from 1988 until its sale to Johnson and Johnson. He is a Director of BioAtla, an immunoncology company, co-executive Chair of 180 Life Sciences, and Executive Chair of Pasithea.

*Dr. Steinman is a consultant for BristolMeyersSquibb, Atreca, Roche, and Novartis. He also serves as a board member for Pasithea Therapeutics, 180 Life Sciences, and Bio Alta. All of the relevant financial relationships for this individual have been mitigated.*



### **Russell Dale, MBChB, MRCPCH, MSc, PhD**

*Professor of Paediatric Neurology and Paediatric Neurology Research; Head, Kids Neuroscience Centre, Children's Hospital at Westmead, Academic Leader (Research), Specialty of Child and Adolescent Health; Faculty of Medicine and Health, University of Sydney*

Professor Russell Dale is a Professor of Paediatric Neurology at the University of Sydney, Australia. He does clinical work at the Children's Hospital at Westmead and runs a research program on neuroimmunology at the University. His main interests are understanding disease mechanisms in rare and common neurological disorders of children, biomarkers such as autoantibodies and cellular markers, and neurotherapeutics. His main priority is to understand how environmental factors in early life interact with genetic vulnerability to create epigenetic dysfunction of the immune system and brain, and how this renders children vulnerable to neurodevelopmental disorders and neuroregression in childhood. He strongly believes that only understanding disease mechanisms will allow novel therapeutics in the future. He is the Head of the Children's Hospital at Westmead Clinical School, clinical director of the Kids Neuroscience Centre, and NHMRC Investigator fellow. He has been the chief investigator in grants totaling over AUD25M, has published 365 peer-reviewed publications, and his Google Scholar H factor is 87 with 29,380 citations.

*Professor Dale has no relevant financial relationship(s) to disclose with ineligible companies whose primary business is producing, marketing, selling, re-selling, or distributing healthcare products used by or on patients.*



## ACTIVITY DIRECTOR

### Anna Conkey

*Executive Director and Founder, Neuroimmune Institute and Neuroimmune Foundation*

*Ms. Conkey has no relevant financial relationship(s) to disclose with ineligible companies whose primary business is producing, marketing, selling, re-selling, or distributing healthcare products used by or on patients.*

## PLANNING COMMITTEE MEMBERS

### Jennifer Frankovich, MD, MS

*Clinical Professor of Pediatrics, Rheumatology, Stanford University School of Medicine*

*Dr. Frankovich has no relevant financial relationship(s) to disclose with ineligible companies whose primary business is producing, marketing, selling, re-selling, or distributing healthcare products used by or on patients.*

## LEARNING AND OUTCOME OBJECTIVES

- Learn how to accurately diagnose and effectively treat inflammatory brain conditions.
- Recognize that neuropsychiatric sequelae can result from infections, autoimmune, and inflammatory conditions.
- List several immune and inflammatory markers that can be present in patients with inflammatory brain disorders.
- Report the cognitive and psychiatric effects that can occur post-infection.
- Describe appropriate treatments for patients with inflammatory brain disorders.

## ACCREDITATION / CREDIT DESIGNATION STATEMENT

This activity has been planned and implemented in accordance with the accreditation requirements and policies of the Accreditation Council for Continuing Medical Education (ACCME) through the joint providership of the Wisconsin Medical Society and Neuroimmune Institute. The Wisconsin Medical Society is accredited by the ACCME to provide continuing medical education for physicians.

The Wisconsin Medical Society designates this live activity for a maximum of 12.0 *AMA PRA Category 1 Credit(s)*<sup>™</sup>. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

## ACCOMMODATIONS

Neuroimmune Institute subscribes to the articles of Title III of the Americans with Disabilities Act of 1990. Should you or anyone accompanying you require special assistance, please notify us by contacting [conference@neuroimmuneinstitute.org](mailto:conference@neuroimmuneinstitute.org) or 904-599-8464.

Requests should be made as early as possible to allow time to arrange the accommodation.

## CME EVALUATION AND CREDIT REQUESTS

CME evaluations must be completed no later than May 20, 2025, to receive credit. CME certificates will arrive via email. Please check your spam if you do not see your certificate.

The CME evaluation is available on our website: [neuroimmuneinstitute.org/cme-evaluation-2025](https://neuroimmuneinstitute.org/cme-evaluation-2025)

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Neuroimmune Institute provides high-quality continuing medical education focused on autism, immunopsychiatric, neuroimmune, and inflammatory brain conditions. Neuroimmune Institute was founded with the goal of rapidly advancing clinical medicine and research.